SWITCHING MODE
DC-DC POWER CONVERTER

FUM-2412-xFDC Series

USER'S MANUAL

INTRODUCTION

This FUM-2412-xFDC series of voltage reducers offer regulated 13.8VDC or 13.2VDC (according to model) power from 20-30VDC sources such as Land Rovers, commercial vehicles, recreation vehicles, farming equipment and other diesel power vehicles. It is implemented by using Switching Mode Power Supply technology to make it generate less heat and hence higher efficiency. Advanced design, quality production control and sturdy construction assure continuestability and reliability.

FEATURES

1. Overload Protection: When the output current is being over the limitation, the overload circuitry is activated and the output voltage and current are reduced to protect the unit.

.

2. Over Voltage Protection: When the output terminal appears over the voltage output limit, the over voltage protection is activated and the output voltage is shut down to protect the unit and your equipment.

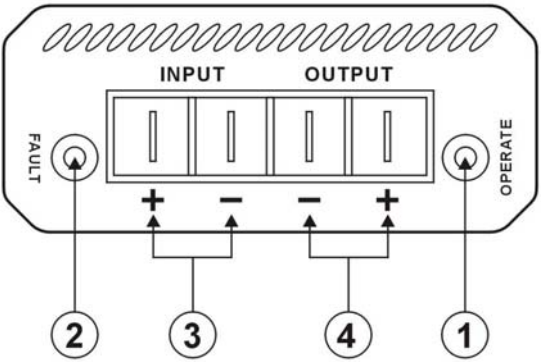
   For FUM-2412-5FDC, internal input fuse will be broken and none of indicators are ON.
   For FUM-2412-7FDC, FUM-2412-12FDC & FUM-2412-18FDC, protection is always kept even though output load is removed. The unit can be reset by disconnect of input about 5-10 seconds.

3. High RFI Stability: The unit is designed for high protection circuitry against RFI (Radio Frequency Interference) provides a stable operation without affected by RFI.

4. Separate LED indicator for operation and fault status.

5. Reliable clip-on mounting bracket construction for easy installation even in hard to get to spot.

CONNECTIONS PANEL



1. OPERATE INDICATOR (GREEN LED): Lights up when the unit is activated.
2. FAULT INDICATOR (RED LED): Lights up when fault occurs the unit may be under protected condition of overload or short circuit.
3. INPUT TERMINAL: 250 type Slip-On Tab
4. OUTPUT TERMINAL: 250 type Slip-On Tab

CAUTION

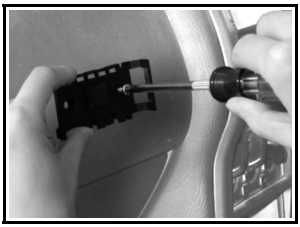
1. **DO NOT** use the unit for equipment which requires current input higher than the max. value otherwise unit may be damaged.
2. **DO NOT** use the unit for lamps or motorized equipment that require high starting surge current otherwise the unit may be damaged.
3. When the internal fuse (input) is broken, check and sort out cause of fault before fuse replacement. Only replace with fuse of the same type and rating.
4. **DO NOT** connect input voltage outside the specified input voltage range of 18-38VDC, otherwise the unit may be damaged.
5. **DO NOT** turn ON the unit when the load is set at full load even if the loading current is within the rating of the unit.
6. Place the unit at a place of well air ventilation, heat is generated during operation.
7. **DO NOT** install unit near heat sensitive material as the casing of unit can get as high as 60°C.

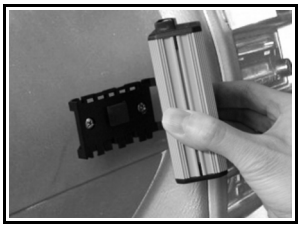
8. **DO NOT** applied a voltage source higher than 13.8VDC or 13.2VDC (according to model) without a proper diode to the output., otherwise unit may be damaged.

9. Although the unit has very low standby current, it is advisable to disconnect the DC input if unit is not used for long time.

CONNECTION AND OPERATION

1. Mount the clip-on mounting bracket on the place that you preferred by machina screws that provided. Clip the unit onto the mounting bracket and make sure it is pushed in all the way to the bracket. It is recommended to mount the unit horizontally.





2. Crimp the input and output cables with 250 type slip-on receptacles that provided by a suitable crimping tools.
   It is recommended to use different colored cable to separate the input, output & polarity. The recommended gauge sizes are at least AWG#18 for FUM-2412-5FDC, AWG#16 for FUM-2412-7FDC, AWG#14 for FUM-2412-12FDC and AWG#12 for FUM-2412-18FDC.

3. Connect the (+) Input Cable to positive terminal (+) and the (-) Input Cable to negative terminal (-) of the 24VDC Battery firmly. The green LED should lights up.

4. Turn OFF the output equipment and then make the connection to the output terminal making sure of the correct polarity.

5. Turn ON the equipment to be powered.

Trouble shooting:

A. None of the indicator LED is on.
Check input source for open circuit and loss of earth.
Remove the load to check if green LED is on .If green LED is still not on, check input voltage level is within range, check polarity is correct, and check battery level is normal or not.
Unit will return to working condition once the fault has been corrected or removed.

B. Red LED is on.
Remove the load to check if green LED is on, if green LED is on, the unit may be in overload, or short circuit protection.
Check the power requirement and the condition of the connected equipment which triggers the red LED.
Loads like high power halogen /quartz lamps, motorized equipment that requires on high surge starting current (which is many times over its rated current) will trigger the protection of the unit. They are not suitable for use with the unit.

SPECIFICATIONS

Model FUM-2412	-5FDC	-7FDC	-12FDC	-18FDC
Input voltage range	18VDC a 38VDC			
Output voltage	13.8VDC			13.2VDC
Continuous output current	5A	7A	12A	18A
Maximum output current at 30% duty cycle	7A	12A	16A	20A
No load current	< 20mA	< 30mA	< 50mA	< 80mA
Ripple & noise (peak-peak)	< 100 mV			< 300mV
Ripple & noise (r.m.s.)	< 10 mV			< 25mV
Load regulation	< 50 mV			< 100mV
Line regulation	< 50 mV			
Efficiency	> 89%	> 90%	> 90%	> 90%
Protections	OVP (Output Over-Voltage Protection); Loss of earth protection; Self reset protection: a) Reverse polarity protection. b) Overload protection. c) Short circuit protection.			
Indications	GREEN LED: Operate RED LED: Fault			
Input & output connection type	Push-on flat blade connectors			
Cooling system	Natural convection			
Max. operating temperature	50ºC			
Internal input fuse (glass type)	8A	12A	20A	---
e-Mark & E-Mark approvals nos.	e11*72/245*95/54*3079*00			E4 10R-02 XXXX
Dimension (W x H x D) mm	77x75x32	96x75x32	142x75x32	162x75x32
Weight	190gr	230gr	380gr	365gr
Accessories	Clip-on mounting bracket set and screw. Slip-on receptacles..			